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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/692,263

10/23/2003

Paul D. Bliley

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EXAMINER

MCCLOUD, RENATA D

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,263

Applicant(s)

BLILEY ET AL.

Examiner

Renata McCloud

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first configuration and the second configuration must be shown in the same figure or the feature(s) canceled from the claim(s). No new matter should be entered.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means to drive the first motor is a second H-bridge" and the means to drive the second motor is a third H-bridge" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

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Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding claims 1 and 4, the phrase "can be" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05.

6. Claims 1-16,29-34 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the first configuration and the second configuration.

7. Claim 9 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: Where/what is the first

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H-bridge? How is there a second H-bridge if there is no first H-bridge previously claimed?

8. Claims 17-28 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: coupling the H-bridge as a component switch, and coupling the H-bridge to drive a motor.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-7, 17-22, 29, 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Nadd et al (US 6747300).

Nadd et al teach, as best understood:

Claim 1: an H-bridge comprising a high switch (Fig. 1: 31) connected to a voltage source (Vcc); a low switch (40) connected to ground (GND), a first configuration of the high switch and the low switch; and a second configuration in which the high

switch and the low switch are each configured as a discrete switch that can be coupled as a component switch, the second configuration being different than the first configuration (Col. 1:54-2:10; Col. 3:1-35).

Claim 2: the first configuration includes the high switch and the low switch connected together and coupled to drive a motor (Col. 3: 1-7).

Claim 3: a second high switch (Fig. 1: 32) connected to the voltage source; a second low switch (41) connected to ground; and wherein the first configuration includes the high switch (31) and the low switch (40) connected together and coupled to drive a motor (30), and the second high switch (32) and the second low switch(41) are connected together and coupled to drive the motor.

Claims 4 and 29: An application-specific integrated circuit (ASIC), comprising: a configurable H-bridge circuit (Fig. 1) that includes a first configuration as a motor drive circuit to drive a motor, and includes a second configuration as discrete switches that can each be coupled as a component switch (Col. 1:54-2:10; Col. 3:1-35); and a configuration register (Fig. 8:80) configured to maintain an indicator of the configurable H-bridge circuit configuration .

Claim 5: the configuration register (80) maintains the indicator that the configurable H-bridge circuit is configured as the discrete switches.

Claim 6: the configuration register (80) is further configured to maintain a switch indicator that indicates a configuration of a discrete switch.

Claims 7 and 30: the configurable H-bridge circuit includes a high switch (Fig. 1: 31) connected to a voltage source (Vcc), and includes a low switch (Fig. 1:40)

connected to ground; and in the first configuration as a motor drive circuit, the high switch and the low switch are configured to be connected together and coupled to drive the motor (Fig. 1: 30).

Claim 17: A method, comprising: writing an indicator to a configuration register (Fig. 7:80; Col. 4:49-5:25) to indicate an implementation of a configurable H-bridge circuit (Fig. 1); coupling the configurable H-bridge circuit to drive a motor in an event that the configurable H-bridge circuit is implemented as a motor drive circuit and coupling a switch of the configurable H-bridge circuit as a component switch in an event that the configurable H-bridge circuit is implemented as discrete switches (Col. 1:54-2:10; Col. 3:1-35).

Claim 18: maintaining the indicator of the implementation of the configurable H-bridge circuit, wherein the indicator indicates at least one of a first configuration of the configurable H-bridge circuit as the motor drive circuit and a second configuration of the configurable H-bridge circuit as the discrete switches (Col. 4:49-5:25).

Claim 19: writing a switch indicator (Col. 4:49-5:25) to the configuration register (80) to indicate a configuration of the component switch.

Claim 20: coupling the configurable H-bridge circuit to drive the motor includes: connecting an output of a high switch (31) of the configurable H-bridge circuit to an input of a low switch (40) of the configurable H-bridge circuit, the high switch (31) connected to a voltage source (Vcc) and the low switch (40) connected to ground (Gnd); and coupling the high switch (31) and the low switch (40) to the motor (30).

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Claim 21: configuring an H-bridge circuit control according to the indicator in the configuration register to couple the configurable H-bridge circuit to drive the motor in an event that the H-bridge circuit is implemented as the motor drive circuit (Col. 4:49-5:25).

Claim 22: configuring an H-bridge circuit control according to the indicator in the configuration register to couple a switch of the configurable H-bridge circuit to a switched component in an event that the H-bridge circuit is implemented as the discrete switches (Col. 4:49-5:25) .

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nadd et al (US 6747300).

Nadd et al teach as best understood:

Claim 8: Nadd et al teach the limitations of claim 4. Referring to claim 8 they disclose the claimed invention except at least a second H-bridge circuit configured to drive a second motor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a second H-bridge to drive a second motor, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Claim 9: Nadd et al teach the limitations of claim 4. Referring to claim 9 they disclose the claimed invention except for another H-bridge circuit configured to drive another motor in an event that the H-bridge circuit is configured as discrete switches. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use second and third H-bridge circuits to drive two motors, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

13. Claims 10-16, 23-28, 31-34, are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrus et al (US 60829143), and further in view of Nadd et al.

Claims 10, 23, 31: Barrus teaches a printing device, comprising: a first motor (Fig. 4: 230) configured for movable control of at least a first component in the printing device; a second motor (Fig. 4: 220) configured for movable control of at least a second component in the printing device; a multiple H-bridge circuit including :a first H-bridge circuit (274) configured to drive the first motor (230) ; a second H-bridge circuit (296) configured to drive the second motor (220); and a third H-bridge circuit (304)that includes a first configuration as a motor drive circuit to drive a third motor (186). They do not teach the driver includes a second configuration as discrete switches that can each be coupled as a component switch. Nadd et al teach an H-bridge circuit that includes a first configuration as a motor drive circuit and a second configuration as discrete switches that can each be coupled as a component switch (Col. 1:54-2:10; Col. 3:1-35). It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the apparatus taught by Barrus et al to use the H-bridge as taught by Nadd et al. The advantage of this would be the ability to reduce the number of components of the device

Claims 11 and 26: Barrus et al and Nadd et al teach the limitations of claims 10 and 23. Referring to claims 11 and 26, Nadd et al teach a configuration register (Fig. 8:80) configured to maintain an indicator of the H-bridge circuit configuration.

Claim 12: Barrus et al and Nadd et al teach the limitations of claim 10. Referring to claim 12, Nadd et al teach the configuration register (80) is further configured to maintain a switch indicator that indicates a configuration of a discrete switch.

Claims 13, 27, 28: Barrus et al and Nadd et al teach the limitations of claims 10 and 23. Referring to claims 13, 27, and 28, Nadd et al teach the configuration register (80) is further configured to maintain a switch indicator that indicates a configuration of a discrete switch, the register configured to maintain a switch indicator that indicates a configuration of a switch (Col. 4:49-5:25).

Claim 14: Barrus et al and Nadd et al teach the limitations of claim 10. Referring to claim 14, Nadd et al teach the configurable H-bridge circuit includes a high switch (Fig. 1: 31) connected to a voltage source (V_{cc}), and includes a low switch (Fig. 1:40) connected to ground; and in the first configuration as a motor drive circuit, the high switch and the low switch are configured to be connected together and coupled to drive the motor (Fig. 1: 30).

Claim 15: Barrus et al and Nadd et al teach the limitations of claim 10. Referring to claim 15, Nadd et al teach the configurable H-bridge circuit includes a high switch

(Fig. 1: 31) connected to a voltage source (Vcc), and includes a low switch (Fig. 1:40) connected to ground; and in a configuration the high switch and the low switch are configured to be component switches (Fig. 1: 30; Col. 1:54-2:10; Col. 3:1-35).)

Claim 16: Barrus et al and Nadd et al teach the limitations of claim 10. Referring to claim 16, Nadd et al teach an application-specific integrated circuit (ASIC), comprising: a configurable H-bridge circuit (Fig. 1) that includes a first configuration as a motor drive circuit to drive a motor, and includes a second configuration as discrete switches that can each be coupled as a component switch (Col. 1:54-2:10; Col. 3:1-35); and a configuration register (Fig. 8:80) configured to maintain an indicator of the configurable H-bridge circuit configuration .

Claim 24: Barrus et al and Nadd et al teach the limitations of claim 23. Referring to claim 24, Barrus et al teach coupling a third H-bridge to drive the third motor (186).

Claim 25: Barrus et al and Nadd et al teach the limitations of claim 23. Referring to claim 24, Nadd et al teach coupling a H-bridge as a component switch (Col. 1:54-2:10; Col. 3:1-35).

Claim 32: Barrus et al and Nadd et al teach the limitations of claim 31. Referring to claim 32, they teach the claimed invention except for the first motor being driven by the second H-bridge that includes the configurable H-bridge, and the second motor is driven by the third H-bridge. It would have been obvious to one having ordinary skill in the art at the time the invention was made to drive the first motor with the second H-bridge and drive the second motor with the third H-bridge, since it has been held that

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rearranging parts of an invention only involves routine skill in the art. In re Japikse, 86 USPQ 70.

Claim 33: Barrus et al and Nadd et al teach the limitations of claim 23. Referring to claim 24, Barrus et al teach coupling a third H-bridge to drive the third motor (186).

Claim 34: Barrus et al and Nadd et al teach the limitations of claim 23. Referring to claim 24, Nadd et al teach coupling a H-bridge as a component switch (Col. 1:54-2:10; Col. 3:1-35).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 8 am - 5pm.

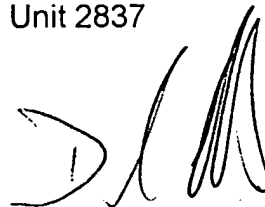
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2800 ext. 4. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RDM

Renata McCloud
Examiner
Art Unit 2837

A handwritten signature in black ink, appearing to read 'D. Martin', with a stylized, overlapping 'M'.

DAVID MARTIN
SUPERVISOR, PATENT EXAMINER
TECHNOLOGY CENTER 2800